

1 This listing of claims will replace all prior versions, and listings, of claims
2 in the application:

3
4 **Listing of Claims**

5
6 **Claim 1 (Previously presented): A method comprising:**

7 identifying, in response to a search query, first multimedia objects having
8 an associated keyword that matches a keyword in the search query and second
9 multimedia objects that have content features similar to those of the first
10 multimedia objects;

11 presenting the first and second multimedia objects to a user;

12 monitoring feedback from the user as to which of the first and second
13 multimedia objects are relevant to the search query; and

14 annotating one or more of the multimedia objects, which are deemed
15 relevant by the user, with the keyword.

16
17 **Claim 2 (Original): A method as recited in claim 1, further comprising:**

18 maintaining associations between the keywords and the multimedia objects,
19 the associations being weighted to indicate how relevant the keywords are to the
20 multimedia objects; and

21 adjusting the weights of the associations based on the user's feedback.

22
23 **Claim 3 (Original): A method as recited in claim 2, wherein the adjusting**
24 **comprises increasing a weight of an association between the keyword and a**
25 **particular multimedia object that is deemed relevant by the user.**

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1
2 Claim 4 (Original): A method as recited in claim 2, wherein the adjusting
3 comprises decreasing a weight of an association between the keyword and a
4 particular multimedia object that is deemed irrelevant by the user.

5
6 Claim 5 (Original): A method as recited in claim 4, further comprising
7 removing the keyword from the particular multimedia object in an event that the
8 weight is less than a threshold value.

9
10 Claim 6 (Original): A method as recited in claim 1, further comprising
11 training how the first and second multimedia objects are identified based on the
12 user's feedback.

13
14 Claim 7 (Original): A method as recited in claim 1, further comprising
15 refining the search to identify additional multimedia objects that contain content
16 features similar to those of the multimedia objects indicated by the user as being
17 relevant.

18
19 Claim 8 (Original): A method as recited in claim 1, wherein the multimedia
20 objects comprise one of digital images, video objects, and audio objects.

21
22 Claim 9 (Original): A computer readable medium having computer-
23 executable instructions that, when executed on a processor, perform the method as
24 recited in claim 1.
25

1 Claim 10 (Original): A method comprising:

2 iteratively retrieving multimedia objects from a database and monitoring
3 feedback from a user as to whether the multimedia objects are relevant to a
4 keyword in a search query; and

5 annotating the multimedia objects based on the user's feedback, with the
6 keyword.

7
8 Claim 8 (Original): A method as recited in claim 10, wherein the
9 retrieving comprises using content-based information retrieval to retrieve the
10 multimedia objects.

11
12 Claim 9 (Original): A method as recited in claim 10, wherein the
13 retrieving comprises using both content-based information retrieval and semantic-
14 based information retrieval to retrieve the multimedia objects.

15
16 Claim 10 (Original): A method as recited in claim 10, wherein the
17 monitoring comprises monitoring both feature-based relevance feedback and
18 semantic-based relevance feedback.

19
20 Claim 11 (Original): A method as recited in claim 10, wherein the
21 annotating is hidden from the user.

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1 Claim 15 (Original): A method as recited in claim 10, wherein the
2 annotating comprises:

3 in an event that a particular multimedia object is deemed relevant by the
4 user and is not yet annotated with the keyword, adding the keyword to the
5 particular multimedia object; and

6 in an event that the particular multimedia object is deemed relevant by the
7 user and is already annotated with the keyword, strengthening an association
8 between the keyword and the particular multimedia object.

9
10 Claim ^{12.}~~16~~ (Original): A method as recited in claim ⁷~~10~~, wherein the
11 annotating comprises:

12 in an event that a particular multimedia object is deemed irrelevant by the
13 user and is already annotated with the keyword, weakening an association between
14 the keyword and the particular multimedia object.

15
16 Claim ^{13.}~~17~~ (Original): A computer readable medium having computer-
17 executable instructions that, when executed on a processor, perform the method as
18 recited in claim ⁷~~10~~.

19
20 Claim 18 (Original): A method comprising:
21 retrieving multimedia objects according to a content-based retrieval
22 process;
23 presenting the multimedia objects to a user;
24 monitoring feedback from the user as to which of the multimedia objects
25 are relevant; and

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1 annotating one or more of the multimedia objects based on the user's
2 feedback, with a keyword.

3
4 Claim ¹⁵~~19~~ (Original): A method as recited in claim ¹⁴~~18~~, wherein the
5 monitoring comprises monitoring both feature-based relevance feedback and
6 semantic-based relevance feedback.

7
8 Claim ¹⁶~~20~~ (Original): A method as recited in claim ¹⁴~~18~~, wherein the
9 annotating is hidden from the user.

10
11 Claim 21 (Original): A method as recited in claim 18, wherein the
12 annotating comprises:

13 in an event that a particular multimedia object is deemed relevant by the
14 user and not yet annotated with the keyword, adding the keyword to the particular
15 multimedia object; and

16 in an event that the particular multimedia object is deemed relevant by the
17 user and is already annotated with the keyword, strengthening an association
18 between the keyword and the particular multimedia object.

19
20 Claim ¹⁷~~22~~ (Original): A method as recited in claim ¹⁴~~18~~, wherein the
21 annotating comprises:

22 in an event that a particular multimedia object is deemed irrelevant by the
23 user and is already annotated with the keyword, weakening an association between
24 the keyword and the particular multimedia object.
25

1 Claim ^{18.}23 (Original): A method as recited in claim ¹⁴18, wherein the
2 annotating comprises:

3 in an event that a particular multimedia object is deemed irrelevant by the
4 user and is already annotated with the keyword, removing the keyword from the
5 particular multimedia object.

6
7 Claim ^{19.}24 (Original): A computer readable medium having computer-
8 executable instructions that, when executed on a processor, perform the method as
9 recited in claim ¹⁴18.

10
11 Claim 25 (Original): A method comprising:
12 maintaining associations between keywords and multimedia objects, the
13 associations being weighted to indicate how relevant the keywords are to the
14 multimedia objects;
15 retrieving a set of one or more multimedia objects for presentation to a user;
16 monitoring feedback from the user as to which of the multimedia objects
17 are relevant; and
18 adjusting the weights of the associations based on the user's feedback.

19
20 Claim 26 (Original): A method as recited in claim 25, wherein the
21 retrieving comprises using content-based information retrieval to retrieve the
22 multimedia objects.
23
24
25

1 Claim 27 (Original): A method as recited in claim 25, wherein the
2 retrieving comprises using both content-based information retrieval and semantic-
3 based information retrieval to retrieve the multimedia objects.

4
5 Claim 28 (Original): A method as recited in claim 25, wherein the
6 monitoring comprises capturing both feature-based relevance feedback and
7 semantic-based relevance feedback.

8
9 Claim 29 (Original): A method as recited in claim 25, wherein the
10 adjusting comprises increasing the weights of the associations between the
11 keywords and the multimedia objects that are deemed relevant by the user.

12
13 Claim 30 (Original): A method as recited in claim 25, wherein the
14 adjusting comprises decreasing the weights of the associations between the
15 keywords and the multimedia objects that are deemed irrelevant by the user.

16
17 Claim 31 (Original): A computer readable medium having computer-
18 executable instructions that, when executed on a processor, perform the method as
19 recited in claim 25.

20
21 Claim 32 (Original): A system comprising:
22 an information retrieval unit to retrieve multimedia objects from a database
23 based on a search query;
24 a relevance feedback unit to capture a user's feedback as to whether the
25 multimedia objects are relevant to the search query; and

an annotation unit to annotate, with a keyword, the multimedia objects based on the user's feedback.

^{21.}
Claim ~~33~~ (Original): A system as recited in claim ~~32~~²⁰, wherein the search query comprises a keyword-based search query having one or more keywords.

^{22.}
Claim ~~34~~ (Original): A system as recited in claim ~~32~~²⁰, wherein the search query comprises a content-based search query having one or more content features.

^{23.}
Claim ~~35~~ (Original): A system as recited in claim ~~32~~²⁰, wherein the information retrieval unit employs both content-based information retrieval and semantic-based information retrieval.

^{24.}
Claim ~~36~~ (Original): A system as recited in claim ~~32~~²⁰, wherein the information retrieval unit comprises:

a query handler to handle both keyword-based queries having one or more search keywords and content-based queries having one or more content features of a multimedia object; and

a feature and semantic matcher to identify at least one of (1) first multimedia objects having keywords that match the search keywords from a keyword-based query, and (2) second multimedia objects having content features similar to the content features of a content-based query.

25.
Claim 37 (Original): A system as recited in claim 32, wherein the relevance feedback unit employs both feature-based relevance feedback and semantic-based relevance feedback.

26.
Claim 38 (Original): A system as recited in claim 32, wherein:
the search query comprises a keyword-based search query having at least one keyword; and
in an event that a particular multimedia object is deemed relevant by the user and is not yet annotated with the keyword, the annotation unit adds the keyword to the particular multimedia object.

20
Claim 39 (Original): A system as recited in claim 32, wherein:
the search query comprises a keyword-based search query having at least one keyword; and
in an event that a particular multimedia object is deemed relevant by the user and is already annotated with the keyword, the annotation unit strengthens an association between the keyword and the particular multimedia object.

Claim 40 (Original): A system as recited in claim 32, wherein:
the search query comprises a keyword-based search query having at least one keyword; and
in an event that a particular multimedia object is deemed irrelevant by the user and is already annotated with the keyword, weakening an association between the keyword and the particular multimedia object.

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1 Claim 41 (Original): A system as recited in claim 32, wherein:
2 the search query comprises a keyword-based search query having at least
3 one keyword; and

4 in an event that a particular multimedia object is deemed irrelevant by the
5 user and is already annotated with the keyword, removing the keyword from the
6 particular multimedia object.

7 ²⁷
8 Claim ~~42~~ (Original): An image retrieval system as recited in claim ²⁰~~32~~,
9 wherein the relevance feedback unit comprises a feedback analyzer to train the
10 system based on the user's feedback.

11
12 [Claims 43-44 (Previously withdrawn)